



Focus

Combined Sewer Overflows (CSOs)

Issue

Combined sewer systems are wastewater collection systems designed to carry sanitary sewage (consisting of domestic, commercial, and industrial wastewater) and stormwater in a single pipe to a treatment facility. In periods of rainfall or snowmelt, total wastewater flows can exceed the capacity of the sewer collection systems and/or treatment facilities. When this occurs, the combined sewer system is designed to overflow directly to nearby streams, lakes, and harbors, discharging untreated sewage and stormwater. These overflows are called combined sewer overflows (CSOs) and can cause significant water quality problems.

Because CSOs contain untreated domestic sewage, commercial and industrial wastewater, as well as surface runoff, many different contaminants may be present. Contaminants may include pathogens, oxygen consuming pollutants, solids, nutrients, toxics, and floatable matter – all of which can harm the health of people, fish and wildlife. CSOs can contribute to shellfish harvesting restrictions, impairment of the aquatic habitat, and aesthetic degradation due to unsightly floating materials associated with raw sewage.

State CSO Program

There are 11 municipalities with CSOs in Washington State. Due to their intermittent nature and variable pollutant and flow characteristics, CSOs are very difficult to control. In 1985, the state legislature amended the state Water Pollution Control Act (Chapter 90.48 RCW) requiring Ecology and local governments to develop reasonable plans and compliance schedules for the greatest reasonable reduction of CSOs at the earliest possible date. To implement this legislation, Ecology adopted Chapter 173-245 WAC in 1987. This regulation defines the greatest reasonable reduction for controlling each CSO as an average of one untreated discharge per year. Washington is probably the only state that has adopted a regulation requiring CSO control and reduction.

All CSO municipalities in the state have developed and received approval of their CSO reduction plans from Ecology in accordance with the state CSO regulation. The requirement to comply with CSO reduction plans is incorporated in each municipality's wastewater discharge permit or in an administrative order. While some communities have achieved the goal of one untreated CSO event per year, other communities continue to make progress in reducing CSOs. Ecology estimated that, in 1988, the average volume of untreated CSOs discharged to the state waters was 3.3 billion gallons of untreated discharges per year. Since then, Washington has made good progress with a reduction of CSOs to approximately 1.3 billion gallons per year.

National CSO Control Efforts

Nationwide, combined sewer systems serve about 43 million people in approximately 1,100 communities and they overflow from as many as 15,000 outfalls. Many of these systems



overflow from 50 to 80 times per year. On April 19, 1994, EPA published a CSO control policy (59 *Federal Register* 18688). The policy establishes guidelines for communities to develop CSO controls. EPA estimates it costs about \$41 billion to control these CSOs.

Summary of Federal CSO Policy

Due to the site-specific nature of the combined sewer systems, the variability of receiving water conditions, and the associated CSO harm to lakes, streams and bays, the EPA policy provides flexibility to communities for developing control programs to fit local needs. However, the EPA policy requires that all CSO communities implement nine minimum controls specified in the policy, and develop comprehensive long-term control plans tailored to site-specific conditions. The long-term CSO control plans must also meet a level of CSO discharge controls to ensure state water quality standards will not be violated.

Comparison Between State and Federal CSO Requirements

Many of the federal CSO control policy requirements are similar to Washington State requirements. Compliance with the state water quality standards is a requirement that must always be achieved under both the state CSO regulation and EPA national CSO control policy. The compliance with the state water quality standards regulation, Chapter 173-201A WAC, is achieved by meeting the numeric standards for concentration levels as well as protecting the designated uses – such as swimming, drinking, fish supporting – of a water body.

Some differences are worth noting. The EPA policy requires immediate implementation of the nine minimum controls specified in the policy. Major issues associated with implementation of the nine minimum controls are the requirement for monitoring CSO impacts and the requirement for public notification of CSO occurrences. Under the state CSO regulation, communities are not required to monitor the CSO impacts, although they do have to monitor the frequency and volume of their CSOs. The state will implement the requirement for public notification of CSOs on a case-by-case basis when updating wastewater discharge permits.

Under the EPA policy, CSO control plans must achieve one of three optional control levels. These control levels are presumed adequate to protect beneficial uses unless there is information that indicates otherwise. However, CSO discharges in excess of those levels are also allowed if the community demonstrates that it will not violate the state water quality standards. For example, the EPA policy allows communities to develop and implement CSO control plans that achieve an ultimate frequency of 4-6 CSOs per year.

EPA recently issued a report to Congress (EPA 833-R-01-003) that presents more details on CSO problems and the current CSO status nationally. This report can be accessed at http://cfpub.epa.gov/npdes/cso/cpolicy_report.cfm?program_id=5.

For more information, please contact Dave Nunnallee at (425) 649-7050.

Ecology is an equal opportunity agency. If you have special accommodation needs, please call Donna Lynch at (360) 407-7529 (Voice) or (360) 407-6006 (TDD). E-mail may be sent to dlyn461@ecy.wa.gov